MANUALLY OPERATED TOOLS

PUNCHES • BENDERS • SHEARS • SHEET METAL TOOLS

ROPER WHITNEY

CATALOG M

Roper Whitney and Pexto manually operated metal fabricating tools ...for production and craftsman alike

In the midst of today's trend toward automation in the metal fabricating field, there's still room for that right combination of quality and simplicity that's found in Roper Whitney and Pexto tools.

Many Roper Whitney and Pexto tools in this catalog, untethered by power cords, will go to work most anywhere for one-at-a-time punching, shearing, bending or notching. They are at home in most any shop: the high volume production shop, the small job shop, in pre-production and engineering model shops, the school shop, in maintenance and repair shops. And in the field: with the utilities, the service and construction industries, and the farmer. For the finishing touches, or to correct mistakes. To make things work, or keep them working.

Roper Whitney and Pexto tools are tools you can rely on, for many years. There are a lot of old ones around that have withstood the test of time. Why? Because their combination of hand crafted quality, design simplicity and construction detail makes them reliable and easy to use. They were a good buy yesterday... they're an even better value today.

Roper Whitney and Pexto products cover a broad spectrum of the metal fabricating tool field. With the manually operated tools described in this catalog; hydraulic punches that combine big "muscle" with portability (in Catalog H); larger, stationary machinery . . . like single station presses, bending brakes, and power shears and notchers (in Catalog M/P/H); and one of the largest selections of punches and dies available for punching round, irregular and special shapes in mild steel, stainless and other special materials (Punch & Die Price List).

And they're available locally throughout the country through distributors that know your needs and how to satisfy them... service that is dependable.

Pexto products included...

In late 1976, Roper Whitney acquired the Pexto line of tools and machinery. In 1977, manufacturing of all Pexto products began in our Rockford, Illinois plant. This catalog includes, with Roper Whitney standard products, Pexto manually operated tools previously cataloged in Pexto literature which is now obsolete. Because of the familiarity of the established Pexto product numbers in the field, we have retained the Pexto catalog number identifications in this catalog and in our order entry system.

In this catalog...

Complete specifications on all our manually operated tools, from the most portable light duty hand punches to floor mount foot and lever presses. And a large variety of portable and bench punches, plus sheet metal fabricating tools are included in this catalog, as shown in the following Table of Contents.

How to order...

Select the tool(s) you need from the Ordering Guides. (Order by "Catalog Number" only.) When ordering punching tools, punches and dies used with them must be ordered from the listings shown in Punch & Die Price List, Punches and Dies. Up-to-date prices for all Roper Whitney products are shown complete in our Pricing Manual. (Both documents are available from Roper Whitney distributors, or direct from the factory, free of charge.)

NOTE: Always select tools with rated capacity sufficient for the task to be performed. *Do not exceed* the rated capacity (to assure a good measure of safety and long life).

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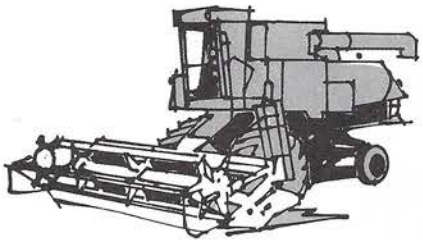
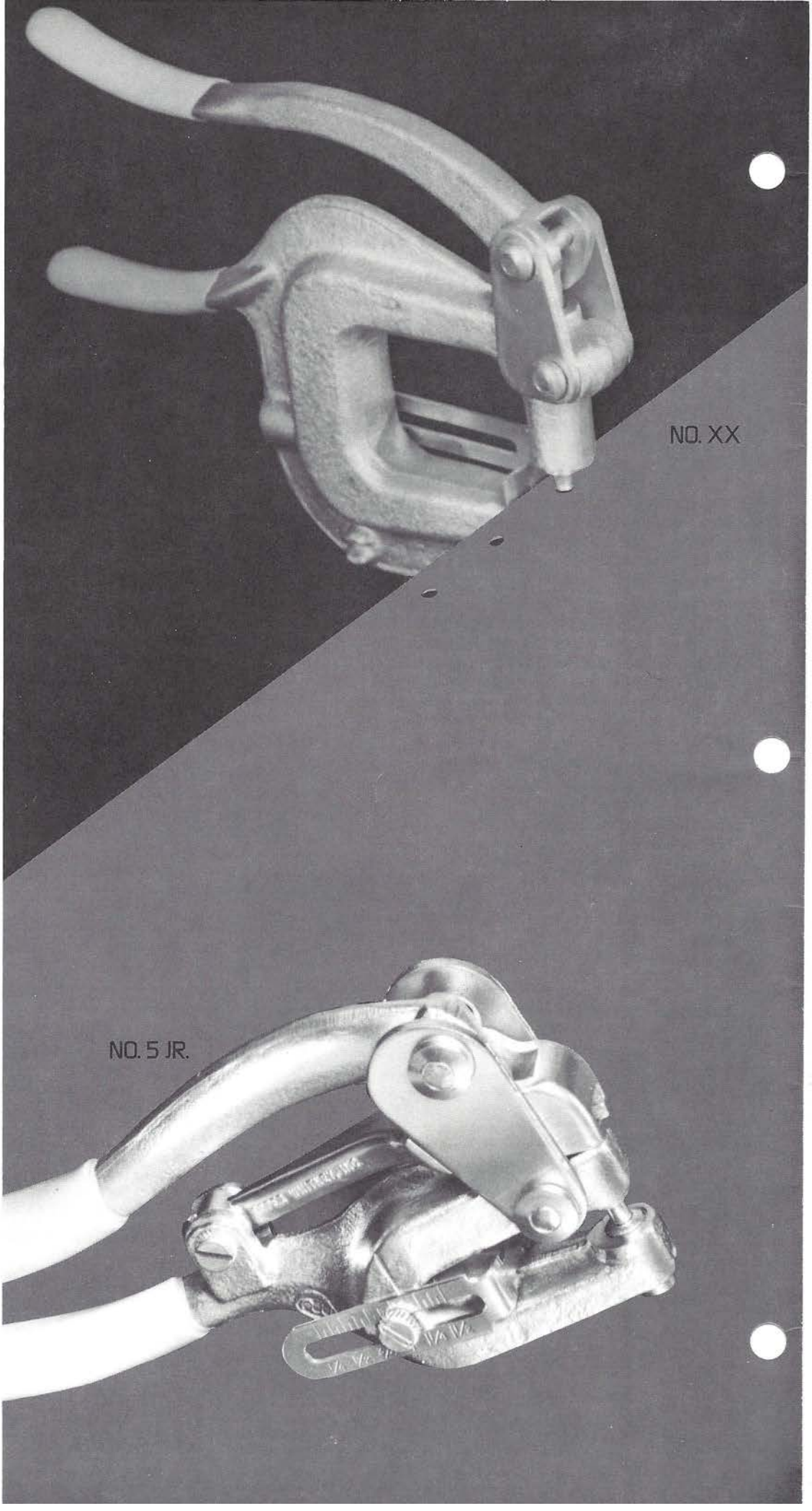



NO. XX
NO. 5 JR.

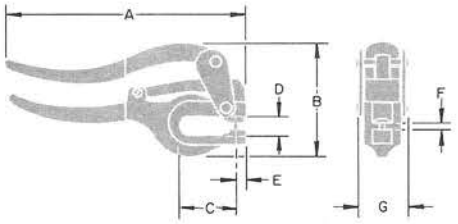
NO. 5 JR. NO. XX

Light Duty Portable Punches are for limited punching power (1.2 tons or less.) They're easy to carry in the pocket, on a belt or in a tool box. Hardened, machined bearing surfaces are used in these tools to provide dependable long life within the rated capacity.

- Maximum rated capacity:* 1.2 tons
- Smallest available
- Hand operation
- Adjustable stop gauge

The No. 5 Jr. punch has a standard 1 3/4-inch throat depth, while the No. XX has a deep throat configuration to punch up to 3 1/4-inch from the edge. The No. XX may be used to punch light channels with 1" minimum inside dimension and 1 3/8" maximum flange. Both punches have optional mounting bases, and are also available as kits with a standard assortment of round punches and dies in a durable plastic box.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Dimensions

Reference	No. 5 Jr.		No. XX	
	IN.	MM	IN.	MM
A	8 1/4	209.55	10 1/4	260.35
B	3 3/4	96.84	6 3/8	161.93
C	1 3/4	44.45	3 1/4	82.55
D	7/16	11.11	2 1/8	53.98
E	5/16	7.94	9/16	14.29
F	9/32	7.14	9/16	14.29
G	1 13/32	35.72	1 5/8	41.28

Ordering Guide

Description	Catalog No.		Weight (Lbs.)	
	No. 5 Jr.	No. XX	No. 5 Jr.	No. XX
Tool Only***	130010050†	130010001‡	2 3/4	6
Tool in Kit***	135010050*	135010001**	4	9 1/2
Bench Mounting Base	139010050	139010001	3/4	1 1/8

* Includes tool, and one 3/32", 1/8", 5/32", 3/16", 7/32", 1/4", and 9/32" round punch and die, and plastic box.

** Includes tool and one 5/32", 7/32", 9/32", 11/32", 13/32", 15/32", and 17/32", round punch and die, and plastic box.

*** No substitutions of punches and dies furnished unless 12 or more tools ordered.

† Includes one 3/16" round punch and die.

‡ Includes one 9/32" round punch and die.

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 5 Jr.	1/16-9/32	1/8 X 3/16-1/4 X 9/32	1/8 X 3/16-5/32 X 7/32	1/8 X 3/16-1/4 X 9/32	1/8-3/16	5/32-7/32	5/32-7/32	3/16 X 1/8-9/32 X 1/4
No. XX	1/16-17/32	1/8 X 3/16-7/16 X 1/2	1/8 X 3/16-5/16 X 3/8	1/8 X 3/16-7/16 X 1/2	1/8-17/64	3/16-3/8	3/16-3/8	3/16 X 1/8-17/32 X 1/2

Bench mount bases

FOR NO. XX

FOR NO. 5

NO. 7A

NO. 8

NO. 7A, NO. 8

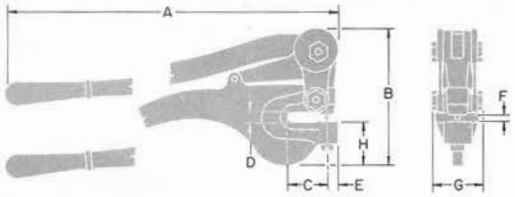
Medium Duty Portable Punches are for medium punching power (up to 5 tons). They are highly portable and of a size that will fit any tool chest or truck locker. The leverage design of these tools assures easy linear operation.

- Maximum Rated Capacities:*
  No. 7A—2.5 tons
  No. 8—5 tons
- Two Hand Linear Operation

These punches are similar except for punching capacity. Unlike other similar tools, these punches will punch and strip inside a 90° arc movement of the lever. And, the upper handle will not disengage when moved to either extreme.

Options include a bench mounting base, with a 3″-3¾″ x 5″ tapped base table; and a factory reversal of the upper handle to provide front pull-down operation when the tool's intended use is as a bench mounted unit.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Dimensions

Reference	No. 7A		No. 8	
	IN.	MM	IN.	MM
A	18	457.2	25½	647.7
B	5¾	146.05	8	203.2
C	1⅝	41.28	2⅛	53.98
D	7/16	11.11	½	12.7
E	½	2.7	⅝	15.88
F	5/16	7.94	⅜	9.53
G	2	50.8	2⅞	73.03
H	1⅞	47.63	2⅝	66.68

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 7A	1/16-7/16	1/8 x 3/16-3/8 x 7/16	1/8 x 3/16-1/4 x 1 1/32	1/8 x 3/16-3/8 x 7/16	1/8-1 7/64	5/32-3/8	3/16-3/8	3/16 x 1/8-7/16 x 3/8
8	1/16-1/2	1/8 x 3/16-7/16 x 1/2	1/8 x 3/16-5/16 x 3/8	1/8 x 3/16-7/16 x 1/2	1/8-1 1/32	3/16-13/32	3/16-13/32	3/8 x 1/8-1/2 x 7/16

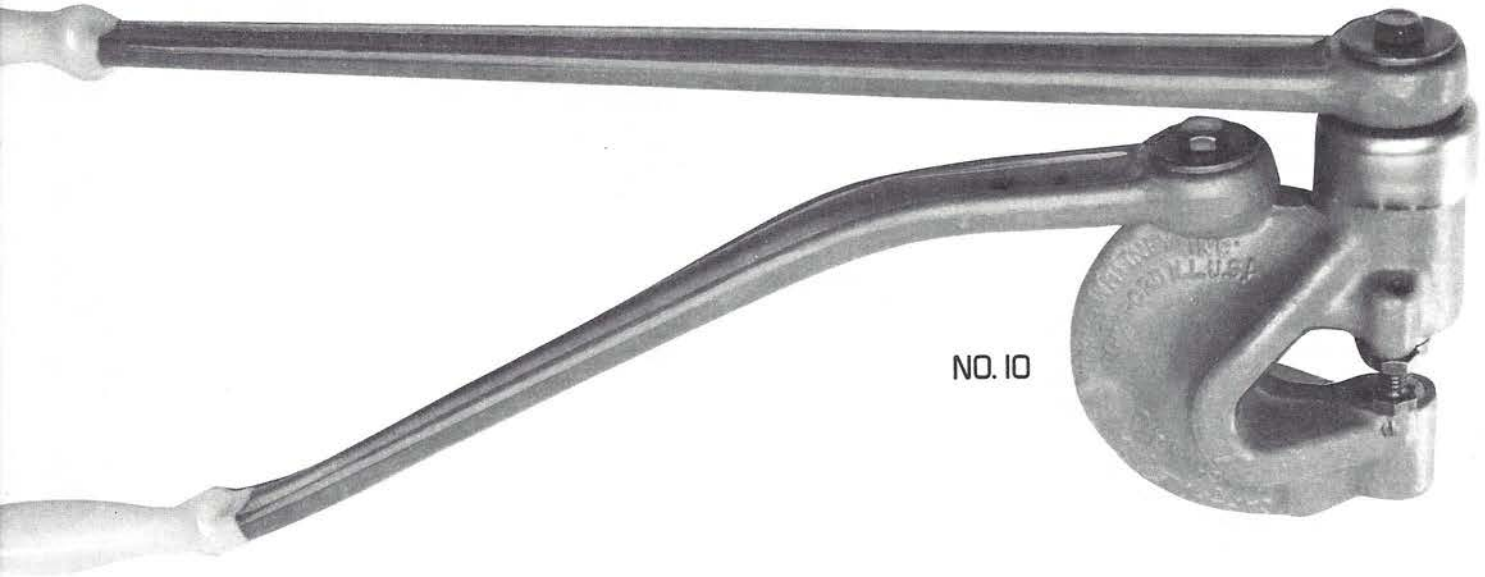
Ordering Guide

Description	Catalog No.		Weight (Lbs.)	
	No. 7A	No. 8	No. 7A	No. 8
Punch	130010070*	130020080†	7½	17½
Bench Mounting	139010070	139020080	5½	8½

*Includes one 7/32″ round punch and die. †Includes one 9/32″ round punch and die. No substitutions.

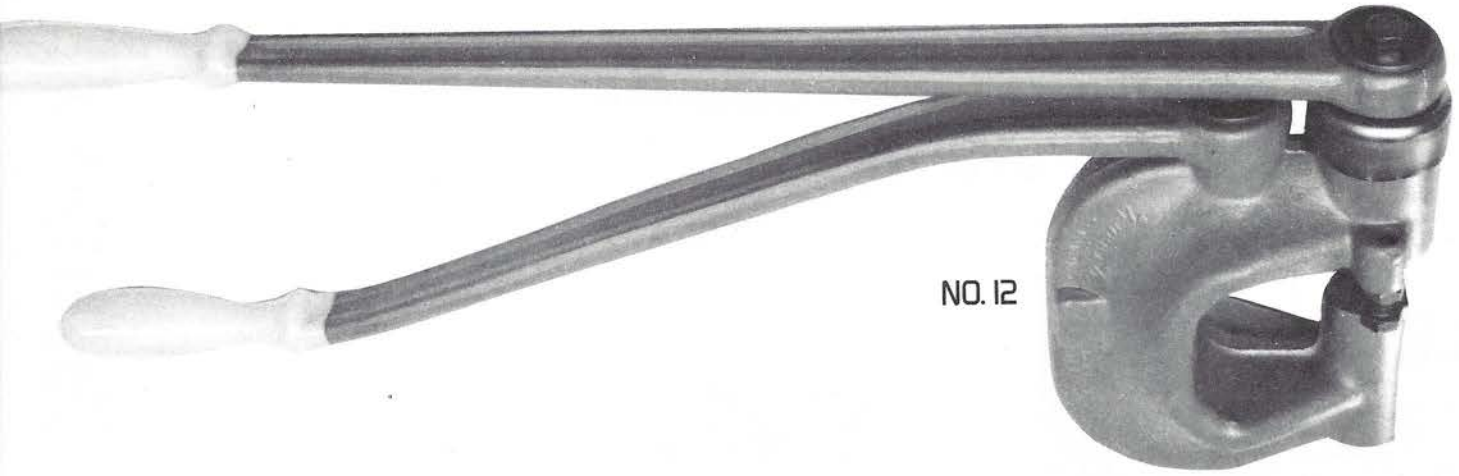
Bench mount bases

FOR NO. 7A, 8



NO. 10

NO. 113



NO. 12

NO. 10
NO. 12

Medium Duty Portable Punches, rotary ball bearing operated, that extend the capacity offered in the Roller Bearing punches 50% while maintaining an equally portable size and weight.

- Maximum Rated Capacity:* 7.3 tons
- Two Handle Rotary Ball Bearing Operation
- ½-inch Punch Movement in a 360° Revolution

These punches use rotary ball bearing operation to provide punching capacity in the medium duty range, beyond the capacity of linear operation punches shown previously. The two punches are similar, except for the deep throat dimensions of the No. 12 to punch up to 2¼" from the edge and accommodate angles, channels and flanged materials.

Options include a ratchet handle to permit operation in close quarters and a base attachment for bench mounting.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.

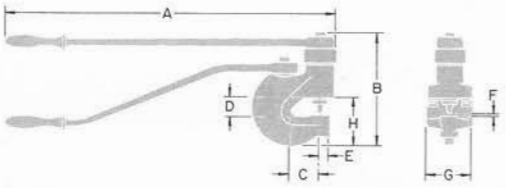
Bench mount base

FOR NO. 10 & 12

Ordering Guide

Description	Catalog No.		Weight (Lbs.)	
	No. 10	No. 12	No. 10	No. 12
Punch	130030100*	130030120*	9	13
Mounting Base	139030100	139030120	4½	6¼
Ratchet handle	138031130	138031130	3½	3½

*Includes one 9/32" round punch and die. No substitutions.



Dimensions

Reference	No. 10		No. 12	
	IN.	MM	IN.	MM
A	19½	495.3	19½	495.3
B spindle up	6¾	171.65	8 5/16	211.14
spindle down	6¼	158.75	7 13/16	198.44
C	1½	38.1	2¼	57.15
D	1⅛	28.58	2⅛	53.98
E	⅝	15.88	19/32	15.08
F	⅜	9.53	⅜	9.53
G	2⅝	66.68	2⅞	73.03
H	1⅜	34.93	2 19/32	65.88

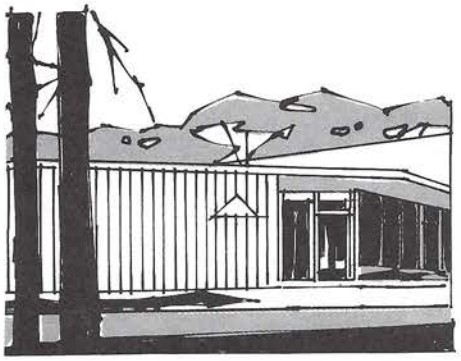
Punches and Dies

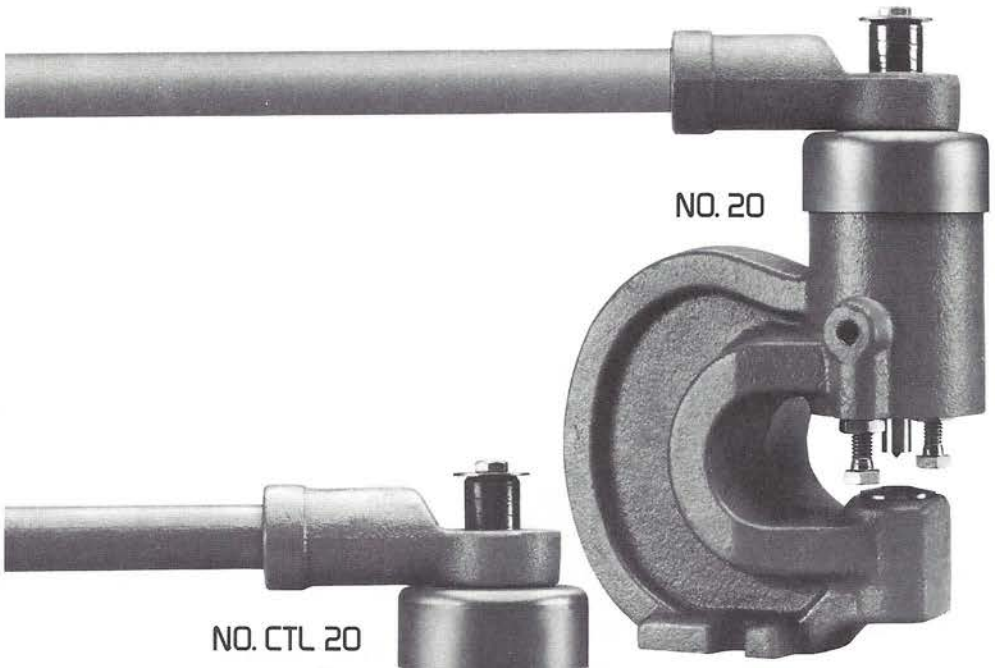
Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

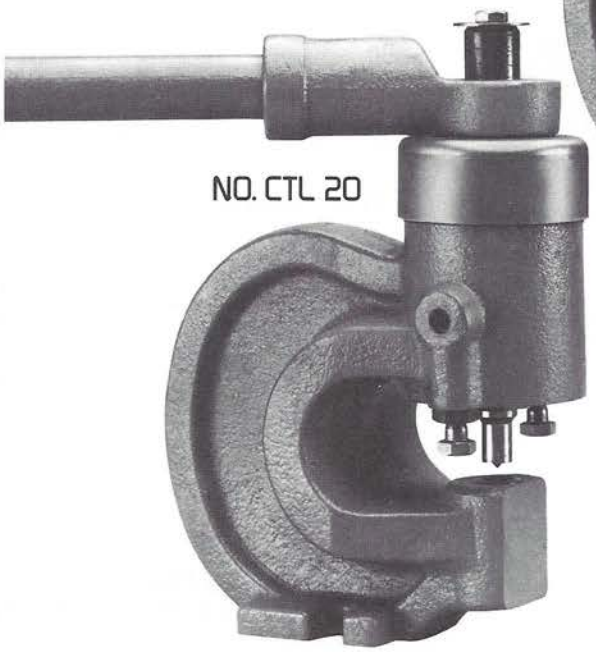
	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 10, & 12	1/16-9/16	1/8 x 1/4-3/8 x 1/2	1/8 x 1/4-5/16 x 3/8	1/8 x 1/4-3/8 x 1/2	1/8-11/32	3/16-13/32	3/16-13/32	3/16 x 1/8-1/2 x 7/16

NOTE: When ordering irregular shaped punches and dies for these tools, a guide/stripper must also be ordered to maintain the critical alignment of the punch.





NO. 20



NO. CTL 20

NO. 119

NO. 20, NO. CTL 20

Heavy Duty Portable Punches are for heavy punching requirements. They operate through ball bearing action and rotary operating motion. While considered portable, they are equally adept as stationary bench mounted tools.

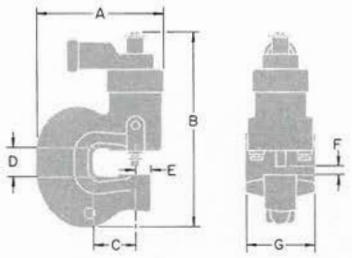
- Maximum Rated Capacities:*
  No. 20 and CTL 20—20 tons
- Rotary Ball Bearing Operation
  (360° equals 1/2-inch punch movement)

These tools offer punching capacities to meet heavier job requirements, and greater versatility in punching flat sheets and angles.

No. 20 and No. CTL 20 are similar, except that the frame around the die pocket of the CTL 20 is machined to allow punching close to the web of angle iron (9/16" from web to center of hole).

Options for these tools include a ratchet attachment (for No. 20 and No. CTL 20) to permit operation in close quarters, pipe handles to provide adequate leverage with minimal effort.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Dimensions

Reference	No. 20		No. CTL 20	
	IN.	MM	IN.	MM
A	7	177.8	7	177.8
B spindle up	11 1/2	292.1	11 1/2	292.1
spindle down	10 1/2	266.7	10 1/2	266.7
C	2 1/4	57.15	2 1/4	57.15
D	1 5/8	41.28	1 5/8	41.28
E	7/8	22.23	1/2	12.7
F	3/4	19.05	3/4	19.05
G	3 7/8	98.43	3 7/8	98.43

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 20	1/8-13/16	1/8 X 1/4-1/2 X 11/16	1/8 X 1/4-3/8 X 9/16	1/8 X 1/4-1/2 X 11/16	1/8-9/16	3/16-19/32	3/16-19/32	3/16 X 1/8-11/16 X 5/8
No. CTL 20	1/8-3/16	1/8 X 1/4-7/16 X 1/2	1/8 X 1/4-5/16 X 3/8	1/8 X 1/4-7/16 X 1/2	1/8-1 1/32	3/16-13/32	3/16-13/32	3/16 X 1/8-9/16 X 1/2

NOTE: When ordering irregular shaped punches and dies for these tools, a guide/stripper must also be ordered to maintain the critical alignment of the punch.

Ordering Guide

Description	Catalog No.		Weight (Lbs.)	
	No. 20	No. CTL 20	No. 20	No. CTL 20
Punch	130030200*	130030201*	25	25
Ratchet attachment	138031190	138031190	4 1/2	4 1/2
48" pipe handle	138032026	138032026	4	4

*Includes one 1/2" round punch and die. No substitutions.
†No. 20 and No. CTL 20 built after early 1981 require no separate mounting base.

NO. 16
NO. 17

NO. 16

NO. 17

Medium Duty *Bench* Punches are similar in operating design and capacity to the Medium Duty Roller Bearing *Portable* Punches described in this catalog. However, in addition to stationary mounting, they also provide greater throat dimensions and a slightly broader range of punch and die sizes.

- Maximum Rated Capacities:*
  No. 16—7.3 tons
  No. 17—5 tons
- Linear Roller Bearing Cam Operation
- Standard and Deep Throat Options (up to 6½")

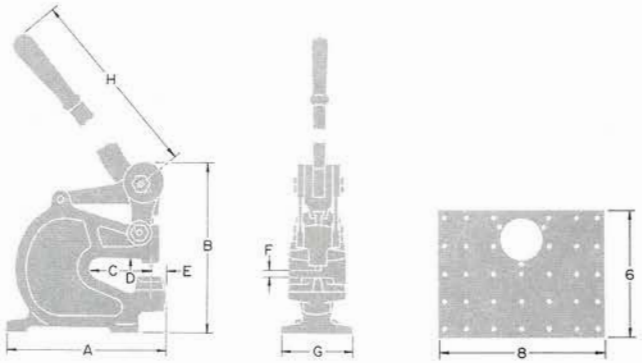
These two punches are similar in use, yet slightly different in their construction detail. The No. 16, with its solid forged frame, has the higher rated capacity and a standard throat. The No. 17 steel frame punch provides a deeper throat dimension to punch up to 6½ inches from the edge of a work piece. Both punches have adjustable die shoes to permit the proper alignment of close fitting punches and dies to punch light gauge materials. Both also have the option of a removable 6" x 8" work table with stops to position materials in the tool.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.

Ordering Guide

Description	Catalog No.		Weight (Lbs.)	
	No. 16	No. 17	No. 16	No. 17
Punch*	131020160	131020170	26½	38½
Work table	137020160	137020160	3½	3½

*Includes one 9/32" round punch and die. No substitutions.



Dimensions

Reference	No. 16		No. 17	
	IN.	MM	IN.	MM
A	8 7/16	214.31	12 3/8	314.33
B	9 5/8	244.48	10 9/16	268.29
C	3¼	82.55	6½	165.1
D	1¾	44.45	2⅛	53.98
E	⅞	22.23	⅞	22.23
F	⅜	9.53	⅜	9.53
G	3⅞	98.43	4½	114.3
H	24½	622.3	24½	622.3

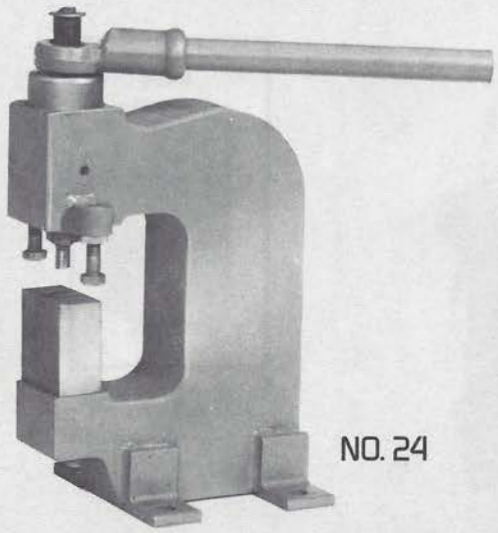
Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 16 & 17	1/16-9/16	1/8 X 1/4-3/8 X 9/16	1/8 X 1/4-1/4 X 1/2	1/8 X 1/4-3/8 X 9/16	1/8-3/8	3/16-15/32	3/16-15/32	3/16 X 1/8-9/16 X 1/2

NO. 24



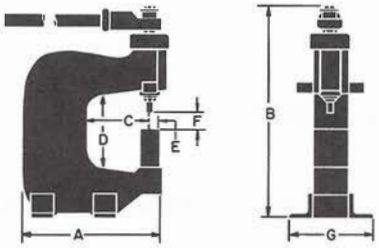
NO. 24

Heavy Duty Bench Punches incorporate the same operating mechanism design as the Heavy Duty Portable Punches in this catalog. Their much greater throat dimensions are a definite advantage in the shop.

- Maximum Rated Capacities:*
  No. 24—20 tons
- Rotary Ball Bearing Operation
- Ideal for Angle and Channel Punching

These heavy duty punches are specifically designed to accommodate angles, channels and flanged parts. They are recommended for stock 10 guage and thicker. They are similar in construction, with the No. 24 providing the higher tonnage capacity with the standard throat depth. A 4-foot pipe handle is also available as an accessory to provide the leverage needed for punching through heavy materials.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.



Dimensions

Reference	No. 24 IN.	No. 24 MM
A	9¼	234.95
B spindle up	16½	419.10
spindle down	15½	393.70
C	3¾	95.25
D	5¾	146.05
E	13/16	20.62
F	¾	19.05
G	6¾	161.45

Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
No. 24 & 25	1/8-13/16	1/8 X 1/4-1/2 X 11/16	1/8 X 1/4-3/8 X 9/16	1/8 X 1/4-1/2 X 11/16	1/8-9/16	3/16-19/32	3/16-19/32	3/16 X 1/8-11/16 X 5/8

NOTE: When ordering irregular shaped punches and dies for these tools, a guide/stripper must also be ordered to maintain the critical alignment of the punch.

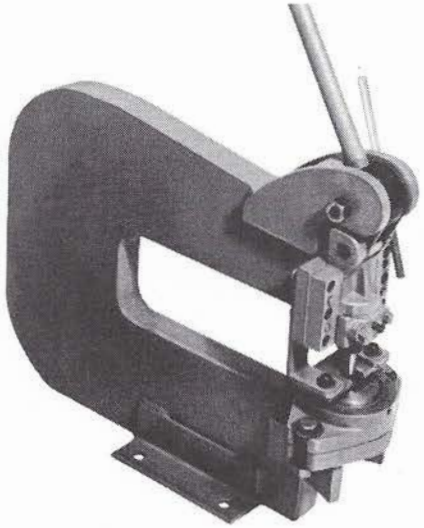
Ordering Guide

Description	Catalog No. No. 24	Weight (Lbs.) No. 24
Punch*	131030240	75½
Ratchet Attachment	138031190	4½
48" Pipe Handle	138032026	4

*Includes one ½" round punch and die. No substitutions.

NO. 119

NO. 218

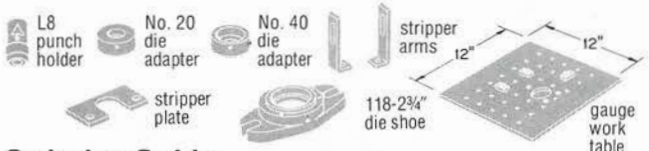


- Maximum Rated Capacity:* 4 tons
- Linear Hand Operation
- Deep Throat (Punch holes up to 12" from edge of material)
- Work Heavy to Ultra Light Materials

This accurate punch is ideal for prototype, short production runs and model shops. The adjustable die shoe permits the proper alignment of close fitting punches and dies to accommodate very thin materials, as well as heavier stock. The option of a cabinet base, and a 12" square gauge work table to extend their usefulness and is provided with standard equipment as indicated below.

*Refer to the tonnage chart on page 29 to determine if the rated capacity of this tool will accommodate the type and thickness of metal and the size and shape hole that you will be punching. Do not, under any condition, exceed the rated capacity of this tool.

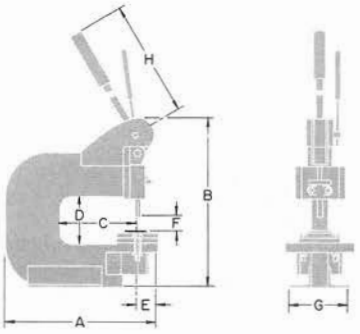
Auxiliary Attachments



Ordering Guide

Description	Catalog No.	Weight (Lbs.)
218 Punch*	131012180	134
Cabinet base	139001180	95
L8 punch holder	136112808	1
No. 20 die adapter	136313020	2
No. 40 die adapter	136323040	1
118-2¾" die shoe	139571180	5
Stripper plate:		
A6 (½" max. punch)	331200500	1
B6 (1" max. punch)	331201000	2
C6 (2" max. punch)	331202000	2
Stripper arms (2)	231940004	2
Gauge work table	137001180	8

*Includes standard equipment: One L8 punch holder, one No. 20 die adapter, one No. 40 die adapter, one 118-2¾" die shoe, stripper arms, one A6 stripper plate, and one ½" round punch and die.



Dimensions

Reference	No. 218 IN.	No. 218 MM
A	21½	546.1
B	17⅝	447.68
C	12¼	311.15
D	4½	114.3
E	2 1/16	52.39
F	¾	19.05
G	5	127
H	24	609.6

Floor space for cabinet base, 23" (584.2 MM) W x 37" (939.8 MM) H x 14" (355.6 MM) Deep.

Specifications

Height of throat with work table—2¾" (69.85 MM)
Length of stroke—¾" (19.05 MM)
Slug hole clearance—2¼" (57.15 MM)
Diameter of punch shank hole in ram—1" (25.4 MM)

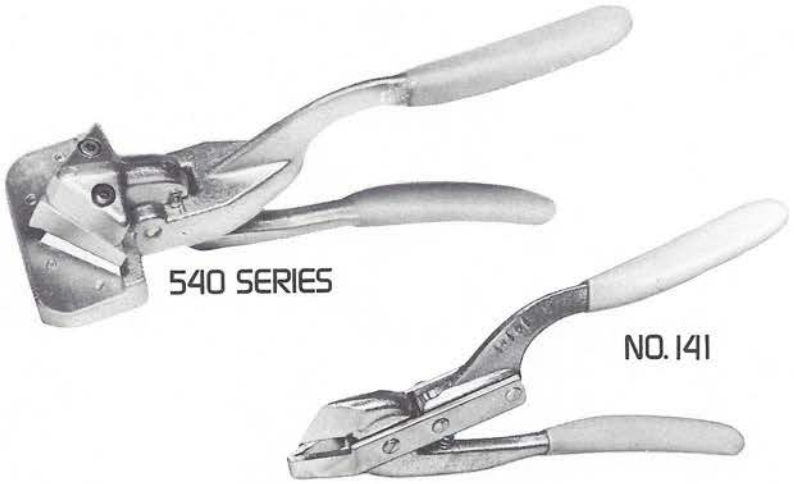
Punches and Dies

Order additional punches and dies from Roper Whitney Punch & Die Price List.

Typical Size Ranges

	Type O	Type M	Type N	Type P	Type R	Type S	Type T	Type D
218	1/8-2	1/8 x 3/16-1 3/16 x 2	1/8 x 3/16-1 x 1½	1/8 x 3/16-¾ x 2	1/8-15/16	5/32-1 7/16	5/32-1 7/16	5/32 x 1/8-2 x 1⅞

NO. 50, NO. 141, NO. 540 SERIES



Portable Notchers

No. 141, No. 540 Series

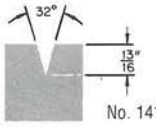
■ 45°-90° notching

No. 540 Series

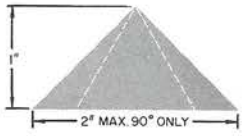
90° and 45° blades and dies will fit only Nos. 541 and 542 tools.

No. 141

For fast, accurate 32° notching. Hook nose jaws permit notching to exact depth without slippage and with minimum effort. Spring-return jaws.



No. 141



Nos. 541 & 542

Specifications

	Length		Capacity mild steel guage
	IN.	MM	
No. 141	9	228.6	20
No. 540	9	228.6	20

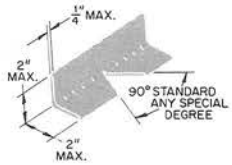
No. 541 (90°) and 542 (45°) notcher has 1" depth of notch with built-in metal stop.

Ordering Guide

Description	Catalog No.	Weight (Lbs.)
No. 141 Notcher	145061410	1
No. 541 90° Hand notcher with 90° blade and die	145065410	2
No. 542 45° Hand notcher with 45° blade and die	145065420	2
Blades and Dies (sets only)		
No. 541 90° blades	250005413	1
No. 542 45° blades	250005423	1

Angle Iron Notcher

No. 50



Designed for notching or coping angle iron. No. 50 is portable and can be used in the shop or on the job site. Standard unit has 90° notching blade and die. This unit is also available as part of the No. 455 combination shear/notcher/bender described on page 23.

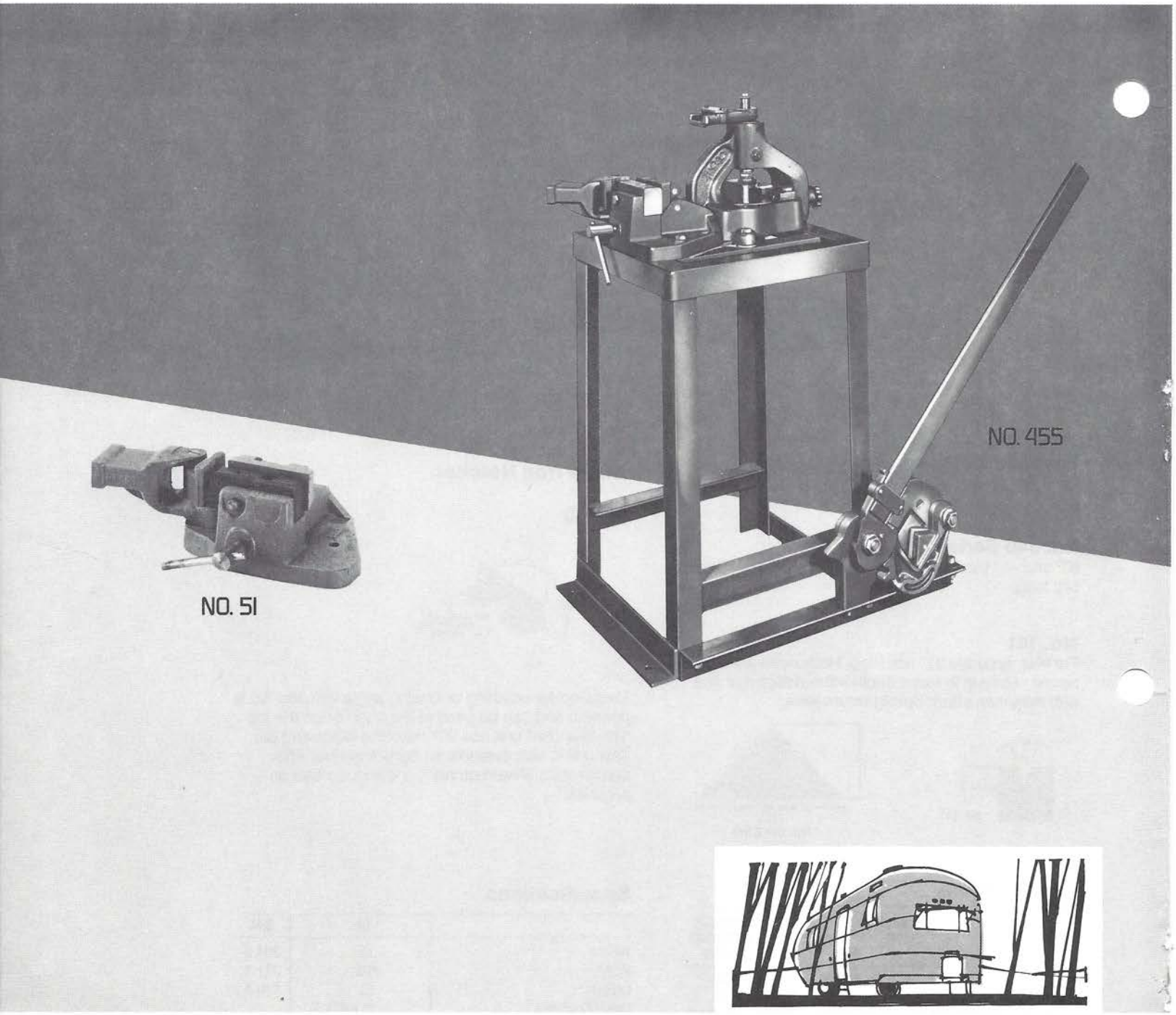
Specifications

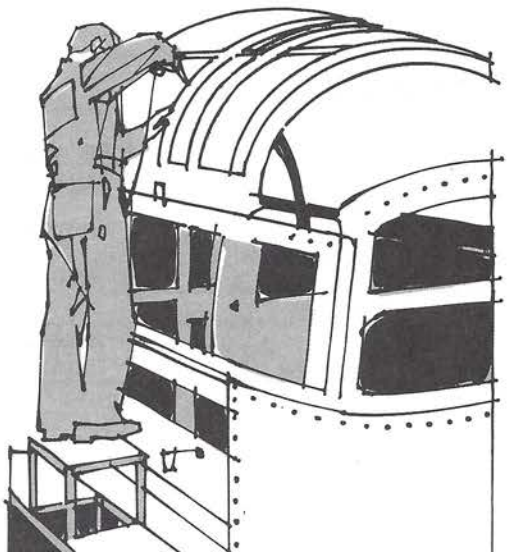
	IN.	MM
Height	12	304.8
Width	9½	241.3
Length	13	330.2
Capacity (max.)	2" x 2" x ¼"	

Ordering Guide

Description	Catalog No.	Weight (Lbs.)*
No. 50 Notcher	145020500	55
Upper notcher replacement blade	350700212	1
Lower notcher replacement die	350700213	2

*Includes 32" operating bar handle.


NO. 455
NO. 51



NO. 51, NO. 455

Designed to form a wide variety of bends in flat stock and angles. One unit (No. 455) is a combination shear, notcher and bender.

Angle Iron Bender No. 51

The No. 51 angle iron bender is a companion tool to the No. 4 angle iron shear and No. 50 angle iron notcher. (Available as a combination unit, No. 455.) It will bend all sizes of angle iron within the rated capacity as well as flat bars. It includes a 32″ operating bar handle.

Specifications

Height	5″ (127 MM)
Width	10″ (254 MM)
Length	15″ (381 MM)
Max. capacity	2″ x 2″ x ¼″

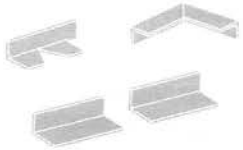
Ordering Guide

Description	Catalog No.	Weight (Lbs.)*
No. 51 Angle Iron Bender (Including handle)	168070510	50

*Includes operating bar handle.

Combination Shear/Notcher/Bender No. 455

No. 455 is a combination shear, notcher and bender. It consists of a No. 51 angle iron bender, a No. 50 angle iron notcher, and a No. 4 angle iron shear, all mounted on a sturdy floor stand. It includes a 72″ operating bar handle that fits all of the tools. Ideal for mobile installation crews, maintenance shops, model shops.



Specifications

Height	33″ (838.2 MM)
Max. capacity	2″ x 2″ x ¼″
Floor space	21½″ x 26″

Ordering Guide

Description	Catalog No.	Weight (Lbs.)*
No. 455 Combination Tool	141034550	200

*Includes operating bar handle.

NO. 0581, NO. 0585, NO. 622 SERIES

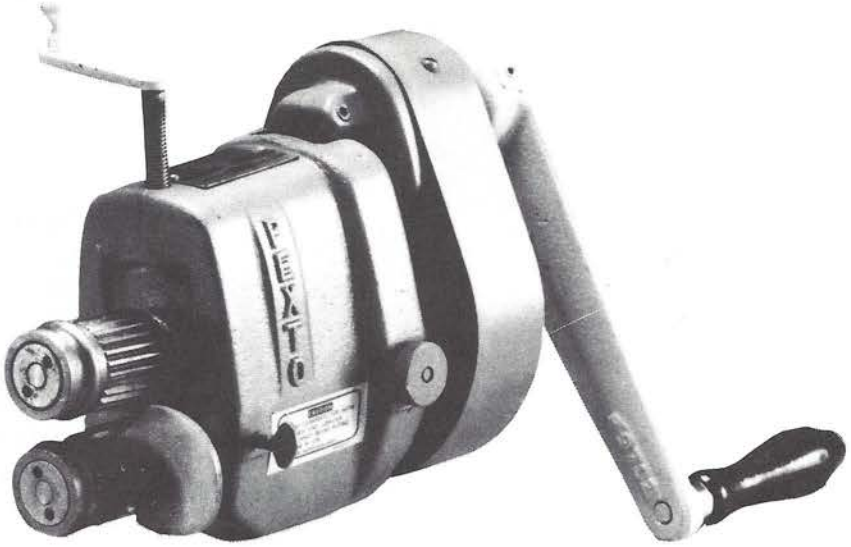
Crimping/Beading Machines
No. 0581, 0585

These machines include Ogee bead and crimping rolls to provide one pass combined crimping and beading. They are adjustable for deep or shallow beading and for "fade-away" crimping. By replacing the beading rolls with spacing collars (furnished), the machines can be used for crimping only. ⅜" and ½" Single Bead Rolls are available for the No. 0585 machine.

NO. 0581

The No. 622 Series is similar to the No. 544, with the addition of a 7" deep throat for additional forming capabilities, such as furnace collar edging, The Model No. 622 includes a set of rolls (A, C, D. E and F) and gauges or may be ordered without rolls as Model No. 622LR.* A number of rolls may be ordered separately from the Roll Chart on page 9 to use with this machine.

All of the 544 Series and No. 622 Series machines include No. 975 clamp-on offset base.



NO. 0585

Ordering Guide

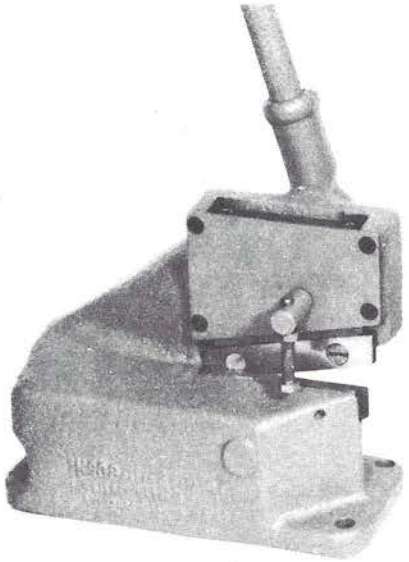
Description	Catalog No.	Weight (Lbs.)
No. 0581 Crimping/Beading Machine including Ogee bead and crimping rolls.	164005810	30
No. 0585 Crimping/Beading Machine including Ogee bead and crimping rolls. ⅜" and ½" single bead rolls available separately.	164005850	51
No. 622 Combination Rotary Machine with A, C, D, E, F rolls. Includes standard ext. and throat gauges. See MPH Catalog Page 9 for roll chart for #622	164006221	50
Gauges for No. 622 Series		
Standard Gauge	259200032	—
Curved Gauge	259700045	—
Extension Gauge	259700060	—
Throat Gauge	259700093	—
No. 975 Base	239009750	11

NO. 622 SERIES

Specifications

		No. 0581	No. 0585		No. 622 Ser.
Capacity (gauge)		24	20		24
Throat Depth (In.)		—	—		7

NO. 38, NO. 39, NO. 4



NO. 38

NO. 39

The following manual shears offer different capacities for cutting metal sheets, flat or round bars.

Throatless Bench Shears No. 39, No. 38

The No. 39 shear has a $4^{1}/_{16}$" blade which will cut up to 10 gauge mild steel, $^{3}/_{16}$" x 2" flat bars or $^{7}/_{16}$" rounds.

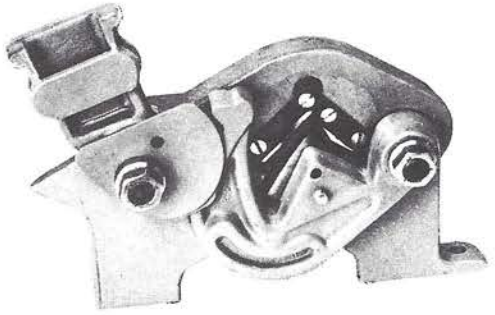
The No. 38 shear will cut up to $^{3}/_{16}$" mild steel with its 5" blade and includes a hold down to prevent stock from tilting in the cut.

Ordering Guide

Description	Catalog No.	Weight (Lbs.)
No. 38 Shear with hi-speed blades	140020381	45
Upper hi-speed blade	350003821	2
Lower hi-speed blade	350003820	2
No. 39 Shear with hi-speed blades	140020391	18
Upper hi-speed blade	350003921	2
Lower hi-speed blade	350003920	2

Specifications

	No. 39		No. 38	
	IN.	MM	IN.	MM
Capacity:				
Sheets & Flats				
Mild Steel	10 Ga.	3.42	$^{3}/_{16}$	4.76
Stainless Steel	$^{3}/_{32}$	2.38	$^{5}/_{32}$	3.97
Rounds				
Mild Steel	$^{7}/_{16}$	11.11	—	—
Stainless Steel	—	—	—	—
Height	11½	292	9	229
Length	10	254.1	11	279
Width	4¼	108	7½	191
Length of Blades	$4^{1}/_{16}$	103	5	127
Length of Handle	—	—	—	—



NO. 4

Angle Iron Shears No. 4

The No. 4 shear with its standard blade is expressly designed to cut up to 2" x 2" x ¼" angle iron (with varying degrees of distortion). A "special" blade minimizes distortion on up to 2" x 2" x $^{3}/_{16}$" mild steel angle iron (with ⅛" thicknesses nearly distortion-free).

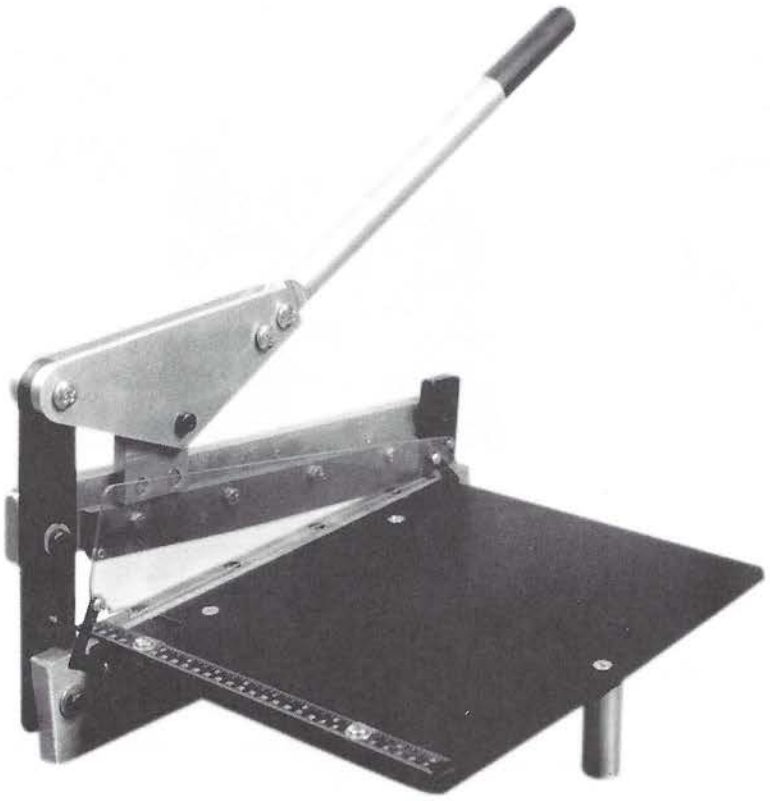
Specifications

	No. 4	
	IN.	MM
Height	10	254.0
Length	13½	342.9
Width	7	177.8
Max. Capacity	2" x 2" x ¼"	

Ordering Guide

Description	Catalog No.	Weight (Lbs.)
No. 4 Shear with standard blade and 72" bar handle	140020040	49
Standard replacement blade	350004070	1
Shear with 2" x 2" x $^{1}/_{8}$"* replacement blade	140020041	49
Special 2" x 2" x $^{1}/_{8}$" replacement blade	350004025	1
Base replacement blades (set)	250004150	1
Replacement die (old style round)	350004060	1
No. 400 Rod Cutter Replacement Blade	350004007	2
No. 400 Rod Cutter Replacement Die	350004006	3

*Shearing 2" x 2" x ⅛" angle with minimum distortion requires a special blade which also cuts other sizes as shown. When minimum distortion is extremely critical, a 12" long sample of the material to be cut should be sent to Roper Whitney for evaluation.



12″ Bench Shear No. 112

The No. 112 shear is portable with a full opening of 13″. Its divided work surface allows use of the full length. Other features include: choice of ruler placement for short strokes, front steel rule, protective front and rear plastic shields and safety latch locks.

Specifications

Height	11″
Length	23″
Width	14″
Weight	27 Lbs.
Capacity	
Brass	.025
Steel	24 ga.
Aluminum	20 ga.
Plastic (FLX)	1/8"

Ordering Guide

Description	Catalog No.
No. 112 Bench Shear	140071120

25″ Bench Shear No. 125

The No. 125 bench shear is precision made, of the highest quality, engineered to provide precise shearing, long life dependability and the utmost in serviceability. It features top and bottom blades that are interchangeable, automatic material hold-down, large work surface, finger safety guard, and easy to reach steel front gage.

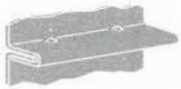
Specifications

Maximum Shear Length	25"
Maximum Back Gage Length	12.5"
Maximum Front Gage Length	12"
Shipping Weight	230 lbs.
Capacity	
Leaded Brass (.062)	16 ga.
Mid Steel (.045)	18 ga.
Aluminum (.075)	14 ga.
Flexible Plastic (.125)	1/8"

Ordering Guide

Description	Catalog No.
No. 125 Bench Shear	140071250

Special Punches



No. 9—Universal Button Punch. Used to indent several thicknesses of metal, forming a 3/8" dia. button or dimple that holds the pieces together securely. A common use is on standing seams on roofs to make a watertight fastening. Head of punch revolves to any position. Ends of jaws are offset at a 30° angle, permitting close corner work and a clear view.

Specifications

	No. 9
Throat depth	1¾" (44.45 MM)
Throat height	5/8" (15.88 MM)
Length	26" (660.4 MM)
Capacity	3 x 20 ga.

Ordering Guide

Description	Catalog No.	Weight (Lbs.)
No. 9 Universal button punch	130040090	10
Replacement punch & die	208090090	1

Grooving Tools

For flattening and offsetting folded edges in lock seaming.

Ordering Guide

Description	Catalog No.	Weight (Oz.)
No. 00 1/2" groove	366640100	18
No. 0 7/16" groove	366640110	18
No. 1 3/8" groove	366640111	18
No. 2 5/16" groove	366640112	18
No. 3 1/4" groove	366640113	14
No. 4 7/32" groove	366640114	14
No. 5 3/16" groove	366640115	14
No. 6 5/32" groove	366640116	14
No. 7 9/64" groove	366640117	14
No. 8 1/8" groove	366640118	14

Whitmetal Pin

Drop forged and hardened. Whitmetal pin has 3⅜" plastic handle.

Ordering Guide

Description	Overall Length IN.	Overall Length MM	Catalog No.
Whitmetal Pin	6½	165.	148630001

Hand Seamers No. 44, 44r, 793

Handy tools for comparatively light work. Wide, deep jaws machined for smooth parallel fit. Form precise folds and seams. Strong, lasting drop-forged steel construction. No. 44 has plain 3½" wide blades. No. 44r is similar with a radius to prevent tearing of aluminum and other light metals. No. 793 has a 3½" wide blade with adjustable depth gauge.

Specifications

	No. 44, No. 44r		No. 793	
	IN.	MM	IN.	MM
Blade width	3½	89	3½	89
Throat depth	1	25	¼ to 1	6 to 25
Overall length	8	203	8	203

Ordering Guide

Description	Catalog No.	Weight (Lbs.)
No. 44 Seamer	148060440	1
No. 44r Seamer	148060441	1
No. 793 Seamer	148067930	1

Pipe Crimper No. 111

A handy, quality tool for crimping sheet metal or aluminum pipe in the shop or out on the job.

Specifications

Depth of throat	1⅛" (28.58 MM)
Length	9" (228.6 MM)
Weight	1 Lb.

Ordering Guide

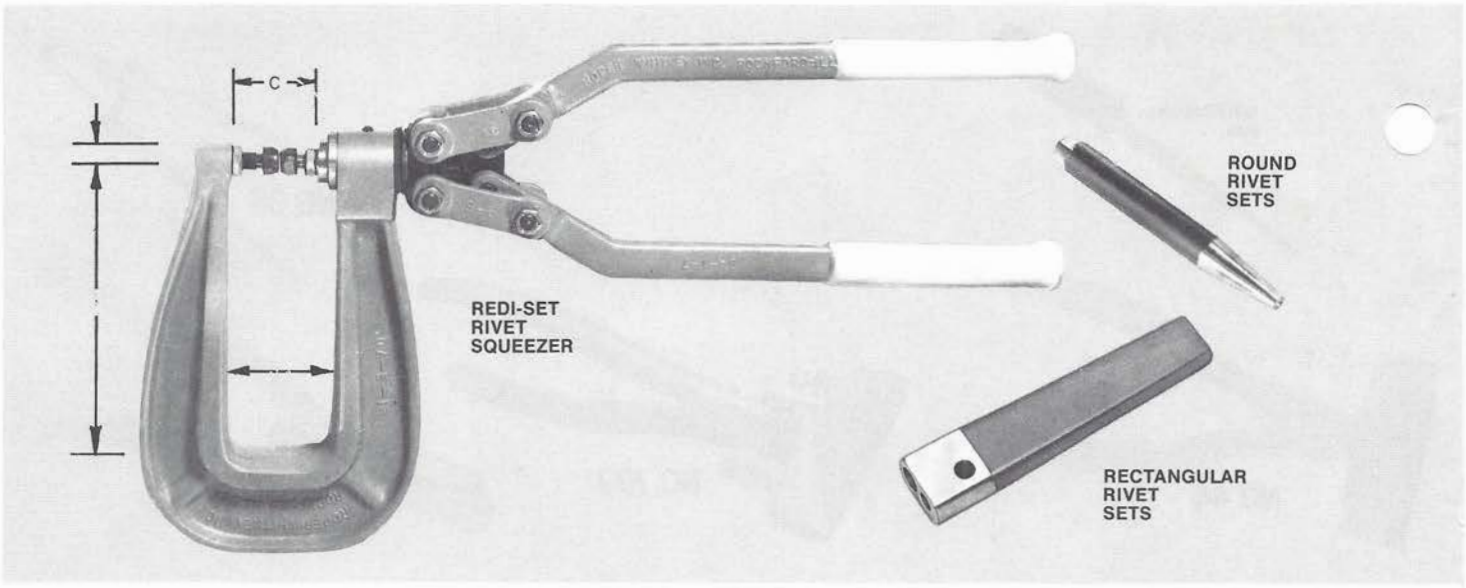
Description	Catalog No.
No. 111	148061110

Wing Dividers No. 35

Polished forged steel dividers with hardened points for long life. Serrated scale for accuracy. Available in four sizes: 6, 8, 10 and 12 inches long.

Ordering Guide

Description	Catalog No.	Weight (Lbs.) (Per Doz.)
No. 35		
6" Dividers	148003506	3½
8" Dividers	148003508	5½
10" Dividers	148003510	8
12" Dividers	148003512	10



Redi-Set Rivet Squeezers

Redi-Set Rivet Squeezers develop 3,500 lbs. of pressure to set any type of aluminum rivet size listed. Dies are adjustable and interchangeable. The riveting plane may be raised or lowered and the jaws may be revolved to any position. Riveting dies are not furnished with tools. When ordering dies, specify type of head and rivet size. (Submit sample rivet when ordering tubular riveting dies.)

Riveting dies stocked in 3/32", 1/8", 5/32" in all types and in addition, Universal Head and Round punch and die in 3/16" size only.

Specifications

Style No.	A		B		C		D		Length (Overall)	
	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM
DA-2	2 1/2	63.5	2	50.8	1 5/8	41.28	5/16	7.94	18 1/2	469.9
DA-5	6	152.4	2	50.8	1 5/8	41.28	5/16	7.94	18 1/2	469.9
Handle assembly only									14 1/2	368.3

Ordering Guide—Redi-Set Tool

Description	Catalog No.	Weight (Lbs.)
No. DA-2	149672502	6 1/2
No. DA-5	149676005	9
Handle assembly only	249001001	4 1/2

Ordering Guide—Dies

	Catalog No.						
Size (In.)	Brazier Head	Modified Brazier	Round Head	Flush or Flat	Universal Head	Counter-sink*	Punch & Die
3/32	218175181	218175151	218175171	218175141	218175161	208175131	208175191
1/8	218175182	218175152	218175172	—	218175162	208175133	208175193
5/32	218175183	218175153	218175173	—	218175163	208175135	208175195
3/16	—	—	—	—	218175164	—	208175197

*Numbers shown are for 100° rivet head angle. To specify 78° angle, replace 7th and 8th digits ("13") with "20"; i.e., "208175131" becomes "208175201"; etc. Also state angle of rivet head when ordering; i.e., 78° or 100°.

NOTE: Sample rivet must be submitted when ordering tubular rivet die.

Hand Forming Rivet Sets

Sets are hardened with polished riveting head surfaces. Round and rectangular types are available. Round types are available in three head styles: brazier, modified brazier, and round. Rectangular types work iron and copper rivets.

Dimensions

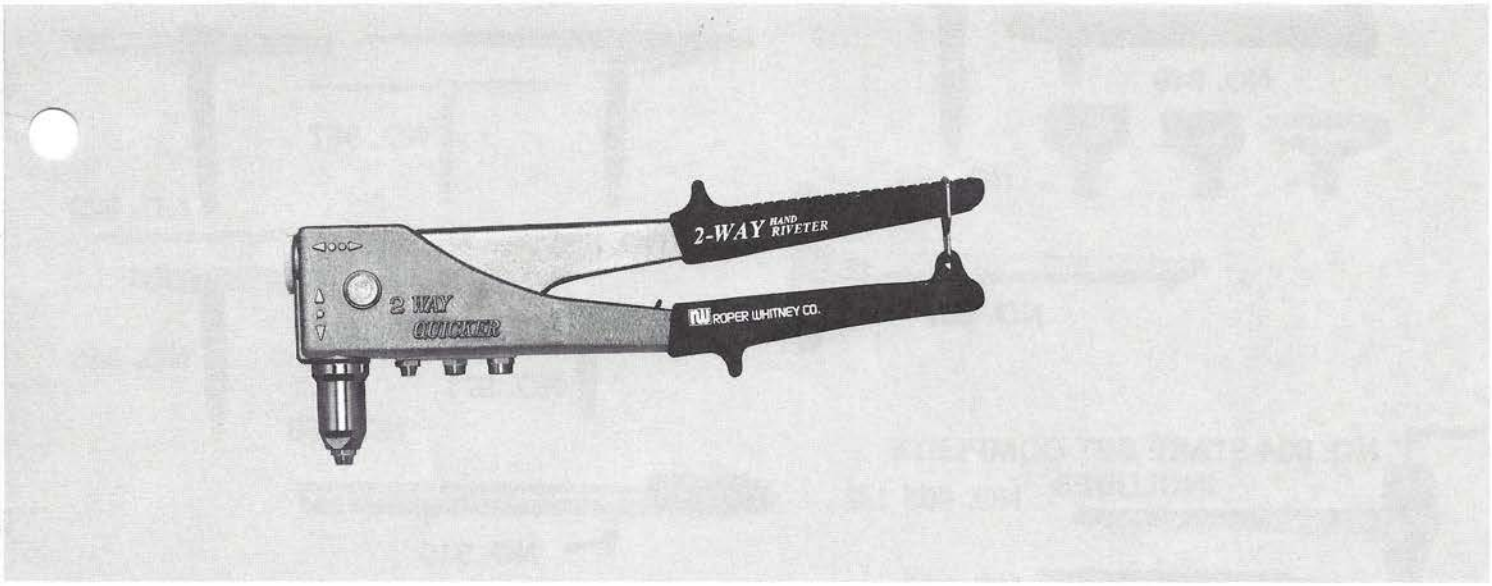
	Round		Rectangular	
	IN.	MM	IN.	MM
Length	4 7/8	123.83	5 3/8 max.	136.53
Diameter	5/8	15.88	—	—
Weight	6 oz.	—	SEE CHART BELOW	

Ordering Guide—Round Type

	Catalog No.		
Size	Brazier	Mod. Brazier	Round
3/32"	385010094	385020094	385000094
1/8"	385010125	385020125	385000125
5/32"	385010156	385020156	385000156
3/16"	385010188	385020188	385000188
1/4"	385010250	385020250	385000250

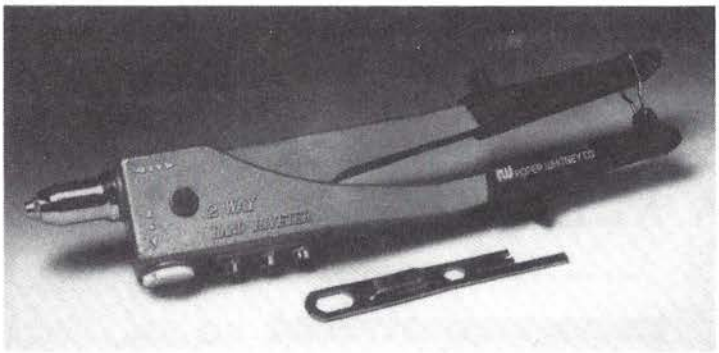
Ordering Guide—Rectangular Type

Size	Hole Size (In.)	Iron Rivets (Lbs.)	Copper Rivets (Nos.)	Weight (Oz.)	Catalog No.
00	.3125	14, 16	—	14	385100100
0	.2812	10, 12	5	14	385100110
1	.2343	7, 8	6	10	385200111
2	.2130	6	7	10	385200112
3	.1910	4, 5	8	10	385200113
4	.1660	3, 3 1/2	9	6	385300114
5	.1495	2, 2 1/2	10, 11	6	385300115
6	.1405	1 1/2, 1 3/4	12	6	385300116
7	.1285	1, 1 1/4	13, 14	4	385400117
8	.1100	10, 12 oz.	15	4	385400118



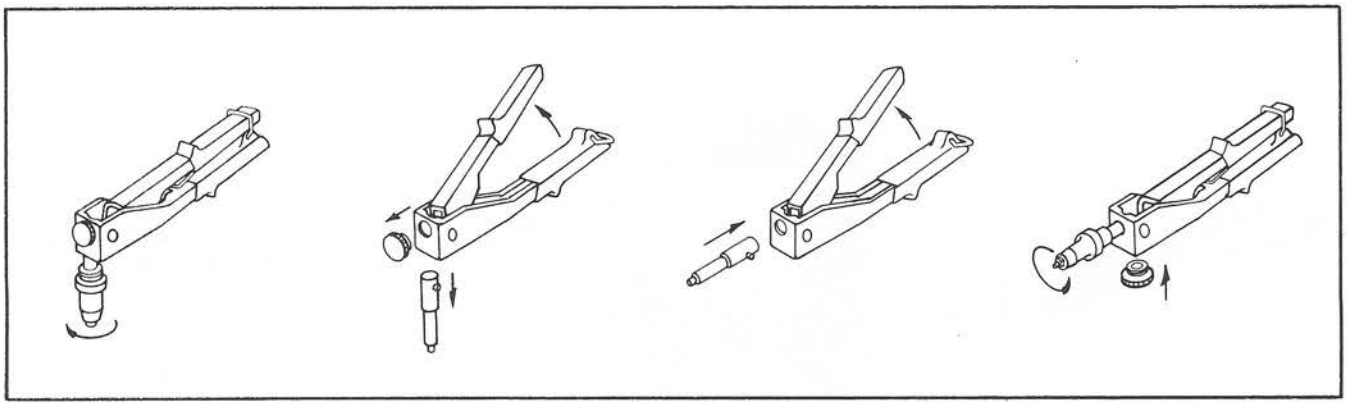
Two-Way Hand Riveter No. 8000

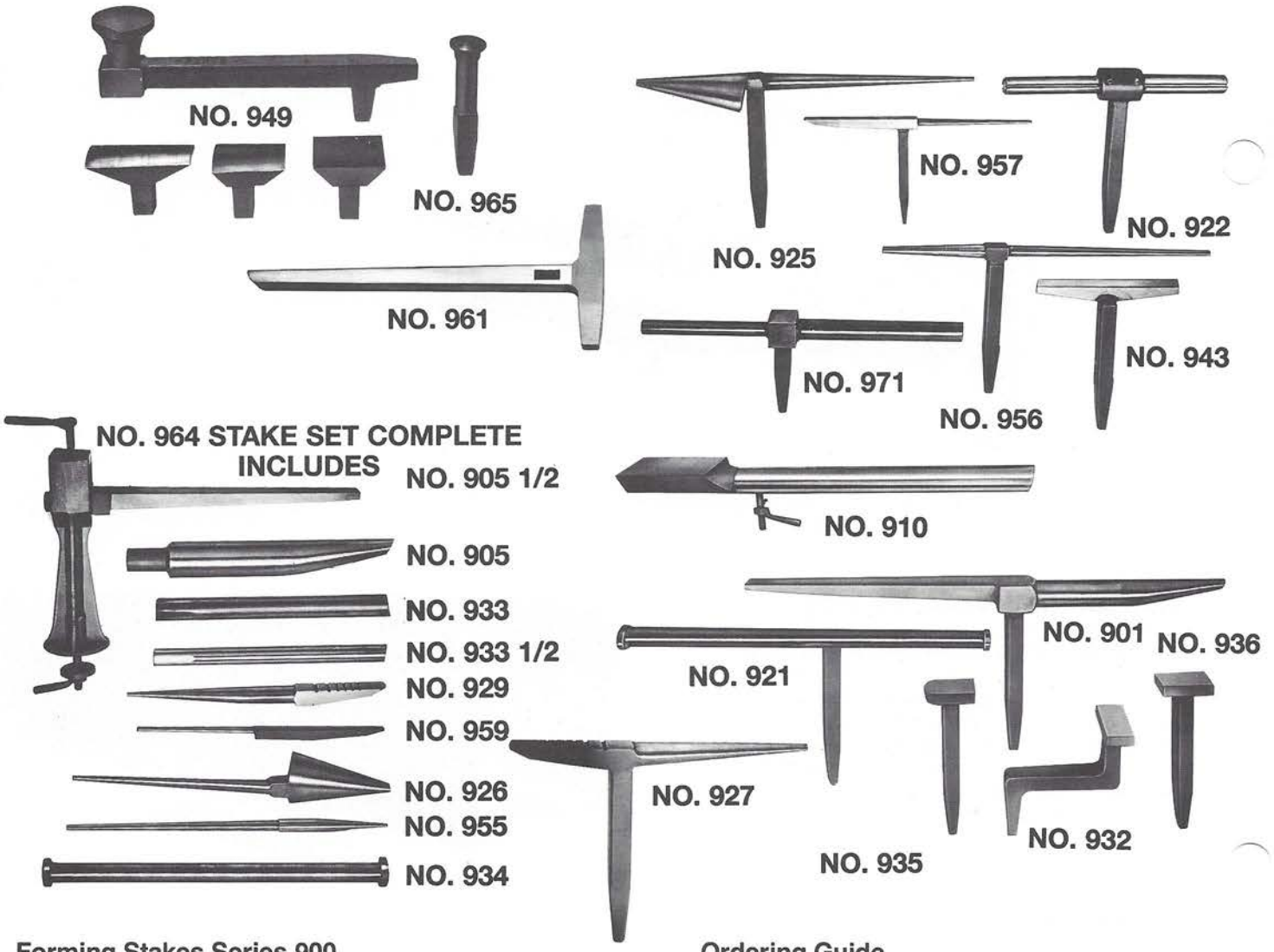
This versatile hand riveter is designed so that the riveting head can be used in either right-angle or straight-line positions. Switching riveting head positions is fast and easy. With dual function convenience normal and hard-to-reach attachments can be made using one tool. Four standard size collets and a changing wrench are included . . . mounted on the handle for quick access. Heavy duty construction and padded handles assure durability and comfortable, sure grip.



Ordering Guide

Description	Catalog No.	Weight (Oz.)
No. 8000 Two-Way Hand Riveter (includes collets for 3/32", 1/8", 5/32", 3/16" rivets and collet changing wrench).	134008000	25.5





Forming Stakes Series 900

Pexto sheet metal forming stakes are invaluable tools for the sheet metal craftsman. A variety of forged steel stakes and cast iron stakes are available individually as shown below, for use in a choice of bench plates. The No. 964 set and holder combines the variety of forged steel stakes with a universal bench mounted holder.

Bench Plates/Stake Holders

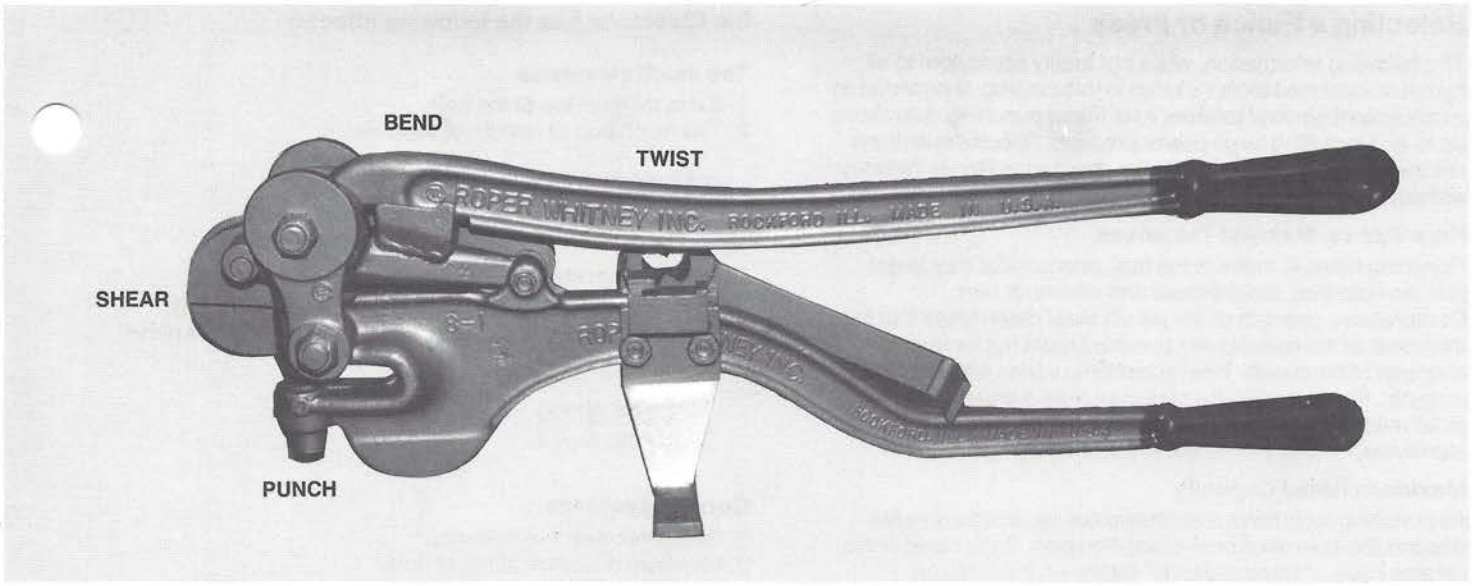
A choice of bench plates/stake holders are offered to satisfy a variety of shop conditions. The No. 981 and 982 are cast iron, machined-face plates, with the No. 982 7½" shorter. The No. 985 steel cabinet is a 33-inch high free-standing base for the No. 982 bench plate, durably constructed.

No. 981

No. 985

Ordering Guide

Description	Size	Catalog No.	Weight (Lbs.)
Forged Steel Stakes			
No. 901 Beakhorn Stake	38" o.a.	146009010	46
No. 921 Double Seaming Stake	29" o.a.	146009210	46
No. 922 Grooving Stake for 3/16", ¼", ⅜" grooves	19" o.a.	146009220	22
No. 925 Blowhorn Stake	27" o.a.	146009250	16
No. 927 Creasing Stake with horn	19" o.a.	146009270	14
No. 932 Bevel Edge Squaring Stake	2½" x 4½" head	146009320	14
No. 935 Coppersmiths Square Stake	2¾" x 4½" head	146009350	11
No. 936 Common Square Stake	2¾" x 4½" head	146009360	11
No. 943 Hatchet Stake	13" Blade	146009430	9½
No. 956 Candle Mould Stake	28" o.a.	146009560	7½
No. 957 Needle Case Stake	18½" o.a.	146009570	4
No. 971 Conductor Stake	28" o.a.	146009710	28
No. 964 Universal Set & Holder		146009640	170
Cast Iron Stakes			
No. 910 Hollow Mandrel	40" o.a.	146009100	46
No. 949 Double Seaming Stake w/ 4 heads	30 1/2" o.a.	146009490	95
No. 965 Round Head Stake	3" head dia.	346009650	9 1/2"
Bench Plates			
No. 981 Bench Plate	37½" x 8"	332009810	65
No. 982 Bench Plate	30" x 8"	332009820	42
No. 985 Stand	18" x 30" x 33"	139009850	50



Hang Four Fabricator

Hang Four Fabricator allows you to fabricate a wide variety of wall anchors, braces, hangers and more . . . on the job. It punches, bends, twists and cuts to your specifications with no more costly delays.

Ordering Guide

Description	Catalog No.	Weight (Lbs.)
4 in 1 Multi Tool	130068537	20

Cutting: One stroke in 11 gage material up to 1 1/2" wide.

Bending: A perfect right angle. Capacity 16 ga.

Punching: Any size hole up to 1/2" through 11 ga. mild steel.

Twisting: Gives full 90° twist automatically with one stroke of the lever. No attachments needed.

Selecting a Punch or Press

The following information, while not totally applicable to all hydraulic operated tools included in this catalog, is provided as a convenient general reference for metal punching operations up to and including large power presses. Specific questions not answered by this data may be directed to Roper Whitney without obligation.

Hole Size vs. Material Thickness

Punching holes in metal is the fast, economical way to get precise hole size, smoothness and minimum burr. Compressive strength of the punch steel determines that the thickness of the metal being punched must not exceed the diameter of the punch. This relationship varies with the type of material. For example: the minimum hole diameter will be ¼" in ¼" mild steel, ¼" in 3⁄16" stainless steel, and ¼" in 5⁄16" aluminum.

Maximum Rated Capacity

All punching tools have their maximum capacities for safe, dependable operation over a long life span. Tools listed in this catalog have a "rated capacity" based on their design strength. Before selecting a tool, use the following charts to determine the specific tonnage required to punch the size and shape holes through the type and gauge metal considered. These figures are for flat punch points. Shear on the punches (explained later) will reduce the tonnage required.

Determining Tonnages

For Round Holes

To determine tonnages for hot rolled mild steel (typically used in bar size angle iron, channels, tees and zees) with a 50,000 psi shear strength, read direct from chart #1.

Example: To punch a 4" diameter hole thru 20 gauge mild steel, the chart shows 11.3 tons are required.

For ASTM A-36 steel (typically used for structural size wide flange, H and I beams, tees and zees) with a 60,000 psi shear strength, read direct from chart #2.

Example: To punch a ¼" round hole in No. 10 gauge A-36 steel, the chart shows 3.2 tons pressure is needed.

For other metals select the proper multiplier from chart #3, and apply it to the tonnage figure for mild steel shown in chart #1.

Example: To punch a 4" diameter hole thru 20 gauge #202 stainless steel with a 1.8 multiplier, calculate as follows: 11.3 tons × 1.8 = 20.3 tons required.

For Irregular Shape Holes

For punching irregular shaped holes (square, rectangular, obround, triangular, etc.) multiply the length of metal to be cut by the multiplier given for a 1" length in chart #4.

Example: The shear length (or total distance around a 1" × 2" rectangular hole) is 6". To punch such a hole in 20 gauge mild steel multiply 6" × 1.01 (from chart #4) = 6.06 tons. For stainless steel this would be 6 × 1.50 = 9.0 tons.

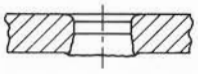
Die Clearance

The relationship of the larger die hole size to the punch size is die clearance and is stated as a percentage of the thickness of the material being punched. The range of clearances varies from 10% for thin materials to 20% for thicker materials. For ¾" material the total die clearance is .150". Clearance should always be specified when there is any reason for doubt.

Die Clearance has the following effects:

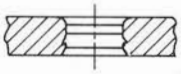
Too much clearance

1. Extra roll-in at top of the hole.
2. Too much burr at bottom of the hole.



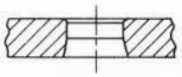
Too little clearance

1. More punching pressure needed. Can reduce tool life.
2. High stripping force causes part distortion and extra punch wear.



Correct clearance

1. Straighter hole thru material.
2. Minimum distortion at top of hole.
3. Minimum burr at bottom of hole.



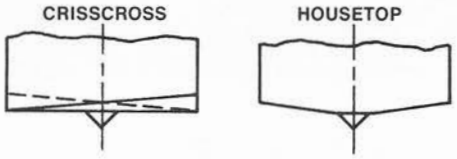
Effects of die clearance are more noticeable in thicker materials (such as ¼") than in thinner materials (such as 16 gauge). Roper Whitney stocks #28 style dies with .006" clearance. For punching 24 gauge thru 14 gauge mild steel or most grades of aluminum, we recommend that you order the #28 style dies for generally satisfactory holes and fast delivery. For other gauges and material thicknesses and minimum burr, specify the type and thickness of material being punched and the exact clearance (see chart #5).

Shear

Shear may be added to most any punch (½" or larger*) to reduce the shock load on machine components and the punch and die, and increase their life expectancy. Shear, in essence, proportions the force through part of the stroke length of the ram . . . much less material is being cut at any one time than would be with a punch without shear.

*There is no advantage of adding shear to smaller than ½".

Two types of shear are added to most Roper Whitney punches:



Round punches 5⁄8" diameter and larger, and square punches 1 1⁄16" and larger have the "crisscross" shear. Rectangular and obround punches with 1" major dimension and larger have the "housetop" shear.

Shear is most effective when punching 14 gauge or lighter materials. It can reduce the punching force by as much as 50%.

Example: Chart #1 shows that 11.3 tons are needed to punch a 4" diameter hole thru 20 gauge mild steel. A punch with shear reduces the force to 5.7 tons.

Chart #1 Tons of Pressure Required To Punch Mild Steel

Round Hole Diameter		1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"
Ga.	In.																					
20	.036	.4	.5	.7	.9	1.1	1.2	1.4	1.6	1.8	1.9	2.1	2.3	2.5	2.6	2.8	4.2	5.6	7.0	8.5	9.9	11.3
18	.048	.5	.7	.9	1.2	1.4	1.6	1.9	2.1	2.4	2.6	2.8	3.1	3.3	3.5	3.8	5.5	7.5	9.4	11.3	13.0	15.0
16	.062	.6	.9	1.2	1.5	1.8	2.1	2.3	2.6	2.9	3.2	3.5	3.8	4.1	4.4	4.7	7.0	9.5	11.7	14.0	16.5	18.8
14	.075	.7	1.1	1.5	1.8	2.2	2.6	2.9	3.3	3.7	4.0	4.4	4.8	5.1	5.5	5.9	8.8	11.7	14.7	17.6	20.5	23.5
12	.105	1.0	1.5	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.7	6.2	6.7	7.2	7.7	8.2	12.3	16.4	20.5	24.5	28.8	32.8
11	.120	1.2	1.8	2.4	2.9	3.5	4.1	4.7	5.1	5.9	6.2	7.1	7.6	8.3	8.8	9.4	14.0	18.8	23.5	28.2	32.7	37.6
10	.135	1.3	2.0	2.6	3.3	4.0	4.6	5.3	5.9	6.6	7.3	7.9	8.6	9.2	9.9	10.6	15.9	21.0	26.5	31.7	37.0	42.2
3/16"	.188	—	2.8	3.7	4.6	5.5	6.4	7.4	8.3	9.2	10.1	11.0	12.0	12.9	13.8	14.8	22.0	29.5	36.8	44.2	51.5	60.0
1/4"	.250	—	—	4.9	6.1	7.4	8.6	9.8	11.1	12.3	13.5	14.7	16.0	17.2	18.4	19.7	34.4	39.3	49.0	60.0	68.7	78.5
5/16"	.312	—	—	—	7.8	9.2	10.7	12.3	13.9	15.4	17.0	18.5	20.0	21.5	23.0	24.6	43.0	49.0	61.5	73.5	86.0	98.0
3/8"	.375	—	—	—	—	11.1	12.8	14.8	16.5	18.5	20.2	22.1	23.8	25.8	27.5	29.5	51.5	59.0	73.6	88.4	103.0	118.0
1/2"	.500	—	—	—	—	—	—	19.7	22.0	24.6	26.9	29.5	31.8	34.4	36.8	39.4	68.8	78.5	98.2	118.0	137.0	157.0

Chart #2 Tons of Pressure Required To Punch ASTM-A36 Structural Steel

Round Hole Diameter		1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	1 1/16"	1 1/8"	1 3/16"
Ga.	In.																		
12	0.105	1.2	1.9	2.5	3.1	3.7	4.3	4.9	5.6	6.2	6.8	7.4	8.0	8.7	9.3	9.9	10.5	11.1	11.7
1/8" or 11	0.120	1.4	2.1	2.8	3.5	4.2	4.9	5.7	6.4	7.1	7.8	8.5	9.2	9.9	10.6	11.3	12.0	12.7	13.4
10	0.135	—	2.4	3.2	4.0	4.8	5.6	6.4	7.2	7.9	8.7	9.5	10.3	11.1	12.0	12.7	13.5	14.3	15.1
3/16"	0.187	—	3.3	4.4	5.5	6.6	7.7	8.8	9.9	11.0	12.1	13.2	14.3	15.4	16.5	17.6	18.7	19.8	20.9
1/4"	0.250	—	4.4	5.9	7.4	8.6	10.3	11.8	13.2	14.7	16.2	17.7	19.1	20.6	22.1	23.6	25.0	26.5	28.0
5/16"	0.312	—	—	7.4	9.2	11.0	12.9	14.7	16.5	18.4	20.2	22.0	24.0	25.7	27.6	29.4	31.3	33.0	34.9
3/8"	0.375	—	—	8.8	11.0	13.3	15.5	17.7	19.9	22.1	24.3	26.5	28.7	31.0	33.1	35.3	37.6	39.7	42.0
1/2"	0.500	—	—	—	—	—	—	23.6	26.5	29.4	32.4	35.3	38.3	41.2	44.2	47.1	50.0	52.9	55.9
5/8"	0.625	—	—	—	—	—	—	—	—	37.0	40.5	44.2	48.0	51.5	55.2	58.9	62.7	66.3	70.0
3/4"	0.750	—	—	—	—	—	—	—	—	—	—	53.0	57.5	61.8	66.3	70.8	75.0	79.4	83.9

Chart #3 Shear Strength

Material Description	Hardness	Ultimate Tensile (Tons)	Ultimate Shear (Tons)	Multiplier For Chart No. 1
Steels				
Low Carbon, H.R. Sheet Low Carbon, C.R. Sheet Structural Steel, ASTM A-36	Rb 70	30	25	1.0
Low Carbon, C.R. Sheet				
Soft	Rb 45-60	26.5	21	.84
¼ Hard	Rb 60-75	30	22.5	.9
½ Hard	Rb 70-85	36	25	1.0
Hard	Rb 80-95	46	30.5	1.2
.40-.50% Carbon Steel H.R. Sheet	BHN 200	50	40	1.6
SAE 1074 C.R. Annealed Spring Steel	Rb 90	42.5	37.5	1.5
SAE 1095 C.R. Annealed Spring Steel	Rb 95	50	40	1.6
SAE 1074 or 1095 Spring Steel Hardened to Spring Temper	Rc 45-50	130	100	4.0
Abrasion-Resisting H.R. Steel Sheet	BHN 200/245	60	50	2.0
Cor-Ten Steel	BHN 140	35	27.5	1.1
Tri-Ten Steel	BHN 120	30	25	1.0
T-1 Steel Types A & B 100,000 P.S.I.Y.S.	BHN 260	65	52.5	2.1
Stainless Steels				
202-Annealed	Rb 95	55	45	1.8
302, 303, 304-Annealed	Rb 85	47.5	37.5	1.5
310-Annealed	Rb 90	52.5	45	1.8
316, 321, 430-Annealed	Rb 90	47.5	37.5	1.5
410-Annealed	Rb 85	42.5	37.5	1.5

Material Description	Hardness	Ultimate Tensile (Tons)	Ultimate Shear (Tons)	Multiplier For Chart No. 1
Aluminum Base* Alloy-Temper				
1100-0	BHN 23	6.5	4.5	.2
-H14	BHN 32	9	5.5	.22
2024-0	BHN 47	13.5	9	.36
-T3	BHN 120	35	20.5	.82
3003-0	BHN 28	8	5.5	.22
-H14	BHN 40	11	7	.28
-H16	BHN 47	13	7.5	.3
3105-H25	BHN 47	13	8	.32
5005-H34	BHN 41	11.5	7	.28
5052-0	BHN 47	14	9	.36
5052-H32	BHN 60	16.5	10	.4
6061-0	BHN 30	9	6	.24
-T6	BHN 95	22.5	15	.6
7075-0	BHN 60	16.5	11	.44
-T6	BHN 150	41.5	24	.96
Copper Base Alloy-Temper				
110-Electrolytic Tough Pitch Copper				
-.050 mm G.S.	Rf 40	16	11	.44
-½ Hard	Rb 40	21	13	.52
-Hard	Rb 50	25	14	.56
220 Comm. Bronze, 90%				
-½ Hard	Rb 58	26	17.5	.7
230 Red Brass, 85%-¼ Hard	Rb 55	25	17.5	.7
260 Cartridge Brass, 70%				
-.035 mm G.S.	Rf 68	24.5	17	.68
-½ Hard	Rb 70	31	20	.8
-Spring	Rb 91	47	24	.96
280 Muntz Metal-⅛ Hard	Rb 55	30	21	.84
342-A High Leaded Brass-½ Hard	Rb 70	30.5	20	.8
675 Manganese Bronze, A				
-Soft Anneal	Rb 65	32.5	21	.84

*500 Kg Lead 10 mm Ball

Chart #4 Tons Pressure Required To Shear 1" Length

Metal Gauge	Mild Steel	Stainless Steel	Brass
20	1.01	1.50	.75
18	1.25	1.75	1.00
16	1.75	2.50	1.25
13	2.50	3.50	2.00
11	3.25	4.75	2.25
3/16"	4.25	7.00	3.25
1/4"	6.25	9.50	4.50
5/16"	8.00	12.00	5.50
3/8"	9.50	14.25	6.25
7/16"	11.00	16.50	7.75
1/2"	12.50	18.75	8.75
5/8"	15.75	23.50	11.00
3/4"	18.75	28.25	13.25
7/8"	22.00	33.00	15.50
1"	25.00	37.50	17.50

Chart #5 Clearances For Mild Steel

Gauge or Size	Approx. Decimal Thickness	Overall Clearance—Add To Punch Size
30	.0120	Slip Fit
28	.0149	Slip Fit
26	.0179	Slip Fit
24	.0239	.003
22	.0299	.003
20	.0359	.004
18	.0478	.005
16	.0598	.005
14	.0747	.006
13	.0897	.009
12	.1046	.009
11	.1196	.011
1/8	.125	.011
10	.1345	.013
5/32	.156	.015
8	.164	.017
7	.1793	.021
3/16	.1875	.023
1/4	.250	.037
5/16	.3125	.047
3/8	.375	.057
1/2	.500	.075
5/8	.625	.125
3/4	.750	.150

NOTE—Most grades of half hard aluminum use the same clearance as shown above. In many cases, your own experience may dictate that you call for clearances different than the above, especially when punching other materials such as stainless steel. Special clearances may be ordered for that purpose.

ORDERING INFORMATION

TERMS: All prices net, f.o.b. factory.

WEIGHTS: All weights listed are shipping weights.

ORDERING CHANGES: No purchase order changes will be allowed after order has been processed by our order entry department except to correct an address or to cancel the order. If changes are necessary, a new purchase order must be entered.

CLAIMS: All claims for shortages must be made within 10 days of invoice date.

QUOTATIONS: Phone quotations are effective only if confirmed prior to shipment. All quotations must be in writing and are effective 30 days only.

ORDERING RULES: BEFORE PLACING AN ORDER, BE SURE TO OBSERVE FOLLOWING RULES TO SAVE TIME AND COST OF PHONE CALLS OR CORRESPONDENCE.

PUNCHING TOOLS . . . (1) Thickness of material. (2) Type of material. (3) Location of hole in material.

SHEARING TOOLS . . . (1)Thickness of material. (2) Width of material. (3) Length of material. (4) Type of material.

PUNCHES OR DIES . . . (1) Thickness of material. (2) Type of material. (3) Tool to be used.

PARTS . . . The model number and serial number of the machine or tool.

SHIPPING INSTRUCTIONS . . . Be sure to advise method of shipping. All orders will be shipped UPS, Parcel Post or Motor Freight unless otherwise indicated.

RETURN MERCHANDISE POLICY: The following is Roper Whitney Co. policy on merchandise returned.

(1) Merchandise returned will not be accepted without written authorization.

(2) Merchandise will not be accepted if the merchandise is not properly packed.

(3) Credit will not be allowed on merchandise that has been used or has been damaged as outlined in our Standard Warranty and subject to our inspection.

(4) All shipments to Roper Whitney Co. must be shipped prepaid unless prior written authorization has been issued.

(5) A restocking charge will be assessed on returned goods.

(6) Tools and machines returned to the factory for repairs will not be accepted unless formal purchase order accompanies or precedes tool or machine. If the tool or machine will require extensive repairs, the factory will notify the customer of the approximate cost of such repairs. Authorization for the repairs must be received by the factory before the necessary repairs will be made. Minor repairs will be made by the factory without notification to the customer. Units considered unrepairable by the factory will be scrapped within 30 days unless return is requested in advance.

LIMITED WARRANTY

All new Roper Whitney tools and machines are warranted, to the original purchaser for use, to be free of defects in material and workmanship for a period of one year from purchaser's date of purchase. Roper Whitney Co. at its option will repair or replace, or refund the purchase price of, any tool or machine which fails within the warranty period and is found upon examination by Roper Whitney to be defective in material or workmanship, or both. This warranty does not cover failures attributable to improper use or maintenance, exceeding rated capacity, alteration, accident, or normal wear of moving parts. Accessories, controls, and hydraulic components not manufactured by Roper Whitney Co. are excluded from this warranty. For services on such parts, refer to applicable manufacturer's warranty.

Purchaser must give written notice to Roper Whitney Co. at the address shown below of any warranty claims within thirty days after failure, and if so instructed, return to Roper Whitney Co. the parts to be replaced or repaired, with all transportation charges prepaid by purchaser. Replacement parts will be invoiced to purchaser, with credit issued for parts covered by this warranty and freight thereon. Removal and reinstallation of replacement parts shall be at purchaser's expense.

THERE IS NO OTHER EXPRESS WARRANTY TO THE EXTENT PERMITTED BY LAW. ANY AND ALL IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE EXCLUDED; AND IMPLIED WARRANTIES NOT EXCLUDED ARE LIMITED IN DURATION TO ONE YEAR FROM DATE OF PURCHASE. INCIDENTAL AND CONSEQUENTIAL DAMAGES ARE EXPRESSLY EXCLUDED FROM THE REMEDIES AVAILABLE TO PURCHASER, AND THE REMEDIES PROVIDED IN THIS WARRANTY SHALL BE EXCLUSIVE TO THE EXTENT PERMITTED BY LAW.

(NOTE: Some states do not allow limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the foregoing limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.)

RETURN OF THE WARRANTY REGISTRATION CARD FURNISHED WITH THE PRODUCT PURCHASED IS NECESSARY TO OBTAIN WARRANTY COVERAGE THEREON. CARD MUST BE FULLY COMPLETED, SIGNED BY THE PURCHASER, AND IF APPLICABLE, SIGNED BY THE DISTRIBUTOR. RETURN REGISTRATION CARD TO:

ROPER WHITNEY OF ROCKFORD, INC.
2833 Huffman Boulevard
Rockford, Illinois 61101